October, 1954

# THE CHEMIST

VOLUME XXXI NUMBER 10

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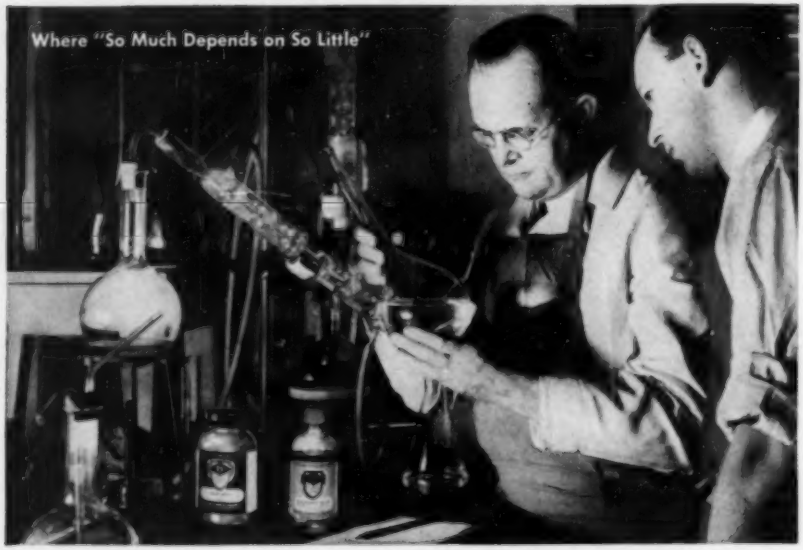


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# IN THIS ISSUE

**Editorial:**

**The Membership Problem, Dr. Donald B. Keyes, F.A.I.C.** .... **385**

**In Retrospect, Dr. Avery A. Ashdown** ..... **387**

**Avery Allen Ashdown, Prof. E. H. Huntress** ..... **389**

**Presentation to Dr. Ashdown** ..... **393**

**Planning a Research Program, Dr. M. L. Crossley, Hon. AIC** ..... **395**

**Social Security — Retirement Benefits for those not Adequately Covered by Existing Retirement Plans. Benjamin Sweedler, F.A.I.C.** ..... **401**

**Communications** ..... **407**

**Council** ..... **408**

**AIC Activities** ..... **409**

**Will You Come** ..... **409**

**Opportunities** ..... **411**

**For Your Library** ..... **412**

**Something New** ..... **414**

**Condensates** ..... **416**

# TO COME IN NOVEMBER

Dr. Hubert N. Alyea will chart some "Educational Ills" and prescribe for them. In his inimitable style, he presented this material at our Annual Meeting. He has condensed it here for those who missed it then. It is good and informative reading. The Western Chapter's Honor Scroll Award to Dr. Robert E. Vivian will be reported. Other articles, news, and departments will keep chemists and chemical engineers informed on professional matters.

# TO SERVE YOU

American Agile Corp. ..... 411
Robert S. Aries & Associates ..... 402
Baker & Adamson ..... Inside Front Cover
J. T. Baker Chemical Co. ..... 384
Central Scientific Co. ..... 381
Corning Glass Works ..... Inside Back Cover
Croll-Reynolds Co. ..... 416
Evans Research & Development Corp. 403
Hardesty Chemical Division ..... 394
Johns-Manville ..... 400
Johnson & Scudder ..... 415
The Lento Press ..... 403
Mallinckrodt Chemical Works ..... 386
Molnar Laboratories ..... 406
Oldbury Electro-Chemical Co. ..... 407
Phoenix Chemical Laboratories ..... 405
Robinette Research Laboratories ..... 404
Foster D. Snell, Inc. ..... 414
R. Steckler Laboratories ..... 409
Truesdail Laboratories, Inc. ..... 405
U. S. Stoneware ..... Outside Back Cover

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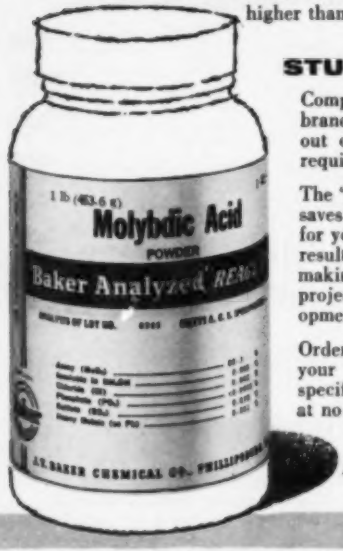


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## EDITORIAL

# The Membership Problem

**Dr. Donald B. Keyes, F.A.I.C.**

*President, The American Institute of Chemists, Inc.*

DR. KETTERING of General Motors fame is reported to be worried that we may be "running out of brains." I am not. My young friends seem to have plenty of brains, some more than their fathers whom I know, but youths confine their interest to much narrower fields than we did years ago.

*Fortune* published last June the results of their "investigation" of brilliant young scientists. They finally reached the interesting conclusion that these young men get a "thrill" out of their work. Name a single *successful worker* in *any* field who does not get a thrill out of his work.

If your field is chemistry or chemical engineering, for example, and you are truly thrilled with it, there is little time left over even to consider the problems of people far removed from those of the physical sciences. One of several things may happen, either you become an "executive," forget your scientific ambitions and study human behavior, or you stick with your science, refuse the lures of top management, ignore local, national and international problems, and scream with anguish when things don't go to suit you, *or* remain silent.

The Institute is concerned with the problems of the professions rather than with the details of science or engineering.

The problem is how do we interest top-notch chemists and chemical engineers who are thrilled with science or engineering in *professional* problems?

If you can supply the correct answer, we can have thousands of new members for our Institute.

Please send your answers to Dr. L. T. Eby, chairman of our Membership Committee, at the Esso Laboratories, Chemical Division, P.O. Box 51, Linden, N.J. This committee will consider all suggestions submitted.

---

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# In Retrospect

**Dr. Avery A. Ashdown**

*Associate Professor of Organic Chemistry, Massachusetts Institute of Technology, Cambridge, Mass.*

(Presented when he received the Honor Scroll of the New England AIC Chapter, May 26, 1954, at Cambridge, Mass.)

FROM MY earliest graduate student days in the Massachusetts Institute of Technology, the Northeastern Section of the American Chemical Society has been a chemistry home to me. Here I have become acquainted with many members of the profession, drawn from the academic and industrial fields. Meeting people interested in one's own line of study always brings its very valuable reward.

It may be good to gain a little perspective by looking back into the decades, now past. Twenty-five years ago, this very month, the Northeastern Section was meeting in the old Hunting Hall of M.I.T. on Boylston Street, Boston, where the Institute was widely known as "Boston Tech." The late Frank C. Whitmore was discussing "Modern American Industrial Organic Chemistry." By comparison, those days will be recognized as infancy for that industry. Twenty years past, in May, 1934, we were meeting in the New Ocean House in Swampscott, to look into the problems left by the depression of 1929. The discussion centered about the topic, "Prosperity or Chaos—Which is Ahead?" Ten years ago, "War Time Food Technology" held our attention under the guidance of Prof. Bernard E. Proctor. In 1949, the afternoon session on "Polymerization" was led by Ernst Hauser. C. Gardner Swain presented his results on studies of the "Effect of Structure on the Rate of Decomposition of Substituted Benzoyl Peroxides." Frank R. Mayo followed with a paper on "Peroxides in Polymerization." In the evening, "Low Temperature Chemical Rubber" was explained by Charles F. Freyling of the Phillips Petroleum Company of Texas.

Other important events in the May calendar of the Northeastern Section, but occurring in alternate years, are conferring the Richards Medal for "conspicuous achievement in chemistry" and the Norris Award for "outstanding achievement in the teaching of chemistry." Only two weeks ago we were adding the name of George Scatchard to the list of distinguished recipients of the Richards Medal. At that time Dr. Scatchard summarized his experience with "Aspects of the Physical Chemistry of Protein Solutions." He kept referring to his work

as fun and his enthusiasm bore out this claim.

These few recollections of the programs of May serve as reminders of the atmosphere of striving to know and understand the progress in chemistry which characterizes the meetings of our section. Combine this fact with the opportunity for conversation at the preprandial hour, the dinner and the coffee hour, and a picture is gained of the many opportunities afforded by our meetings.

Throughout the quarter of a century, touched on, it has been my privilege to hold several offices in the Section and to have seen it all as the long-time editor of its official publication, *The Nucleus*.

Turning to teaching, for twenty-four years it has been a source of great satisfaction to have had a part in explaining organic chemistry to many young chemists and chemical engineers in the Massachusetts Institute of Technology. How to help students to acquire, quickly and effectively, a comprehensive grasp of a subject, furnishes the driving force for the teacher. Lecturing challenges the imagination to find the approach which will bridge difficulties bound to arise in the mind of a class. Recitation sections, so-called, bring about lively discussions on a fairly intimate basis. Most satisfying of all is the laboratory where each student is met as an individual. Time and again the student will say that he has a problem or problems, thus furnishing the best opportunity for working together to clear up difficulties.

My work in the M.I.T. Graduate House, now at the end of its twenty-first year, has brought personal acquaintances with several thousand graduate students, drawn from the ends of the earth. Since that last day of April in 1933, when Dr. Compton asked me to serve as house master of the newly created graduate housing plan of the Institute, the spirit of the House has come to be that of a home away from home and a gentleman's club. Here live together four hundred and fifty-two graduate students "of differing interests out of equivalent intellectual outlook." Opportunity is provided for that free exchange of ideas, both social and intellectual, on which effectiveness in the world so largely depends.

Often I think, how, through their eyes, I have caught glimpses of the far-reaches of our world. In another very real sense I have gained insight into many corners of the universe of the mind. These graduate students, already far advanced in their fields of study, are a representative group of the keenest minds of their generations. Just to live with them has been a privilege beyond comparison.

So much of my life has been spent in Cambridge, on the banks of the Charles River, that I should like to pay tribute to the valley where evidence, gained by the carbon-fourteen dating of the wood in a fishweir, found in excavations along Boylston

Street, Boston, points to a community living here about five thousand years ago. This fishweir, two acres in extent, argues for a considerable group of people making a home in the neighborhood. All this long time many tribes, settlers and citizens have found this valley an acceptable place for habitation.

In our own day, let us look, in imagination, from the Boston side of the Charles toward the buildings of the Massachusetts Institute of Technology, rising in monumental dignity, on the Cambridge shore. Crossing the bridge and proceeding into the Great Court of the Institute, brings the traveler under the stately trees where he can pause, for a while, picturing the host of witnesses for the upward striving spirit of man, which has trod this same expanse of lawn and court. His mind, also, may carry him up the river to Harvard, with its great traditions and farther afield to embrace, for example, the Gothic towers of Boston College, of Boston University and, over the rim of the horizon, to many other educational and industrial establishments, where chemistry plays its important part. In the end, will he not now return to reality, in this room, where, together, we have enjoyed the hour!

# Avery Allen Ashdown

**Prof. E. H. Huntress**

*Massachusetts Institute of Technology, Cambridge, Mass.*

(Presented on the occasion of the award of the New England AIC Chapter's Honor Scroll to Prof. Ashdown, May 25, 1954, at Cambridge, Mass.)

IT WAS NOT my privilege to make the acquaintance of this diligent scholar, devoted teacher, and valued friend, until he came to Cambridge in 1920. For the last thirty-four years, however, our interests and careers have been closely related and both have been carried on in this metropolitan area in general and the M.I.T. community in particular. Such as may be familiar with the television program entitled, "This Is Your Life" will immediately recognize how in this position I envy the resources and facilities available to its master of ceremonies, Mr. Ralph Edwards. Were they available, I should at this point produce a photograph of the farmhouse in the little town of North Collins, N. Y., not far from Buffalo, where on October 28, 1892, there was great rejoicing. I should subsequently show pictures of his parents and relatives, and through the cooperation of a far-reaching airline produce in the flesh an appropriate selection of various early chums and schoolmates, followed by a selected group of scien-

tists and captains of industry in whose lives he has played some part. Practical considerations preclude this particular approach!

The professional training of Prof. Ashdown was obtained at three different places. At the University of Rochester he obtained the B.A. in 1914 and the M.A. in 1916. After four additional years serving his Alma Mater as instructor in general chemistry and nearly a year as acting city chemist of Rochester, he came to M.I.T., which in 1924 conferred upon him the degree Ph.D. in organic chemistry. He collaborated during the summers with the late Prof. Tenney L. Davis in certain organic chemical research on explosives for the U.S. War Department, and during the academic year was assistant in the organic laboratories. His doctoral research was carried out with the late Prof. James Flack Norris and represented an important contribution to our knowledge of the relative reactivity of the hydroxyl hydrogen in alcohols. During the final year of his doctoral candidacy, he held M.I.T.'s distinguished Grasselli Fellowship. After the doctorate, Prof. Ashdown spent a year (1924-25) in Switzerland, where, as the holder of the Forris Jewett Moore traveling fellowship, he collaborated with Dr. Herman Staudinger at the Federal Technical School of Zurich on work now recorded in the famous *Annalen*.

Upon his return from abroad, Dr. Ashdown reassociated himself with M.I.T., in whose department of chemistry he successively held the ranks of research associate (1925-1930), instructor in chemistry (1930-1934), assistant professor of organic chemistry (1934-1940), and associate professor of organic chemistry (1940-present). Throughout his long association with the M.I.T. department of chemistry, his research interests have focused primarily upon quantitative evaluation of the relative reactivity of alcohols and his substantial advancement of our knowledge of this field is duly recorded in various technical papers in the *Journal of the American Chemical Society*. His sustained interest in the history of chemistry and in chemical biography is certainly well known; and papers relative to James Mason Crafts, the earliest history of the Friedl-Crafts reaction, to Marcellin Berthelot and others can be found in the files of both *Industrial and Engineering Chemistry* and the *Journal of Chemical Education*.

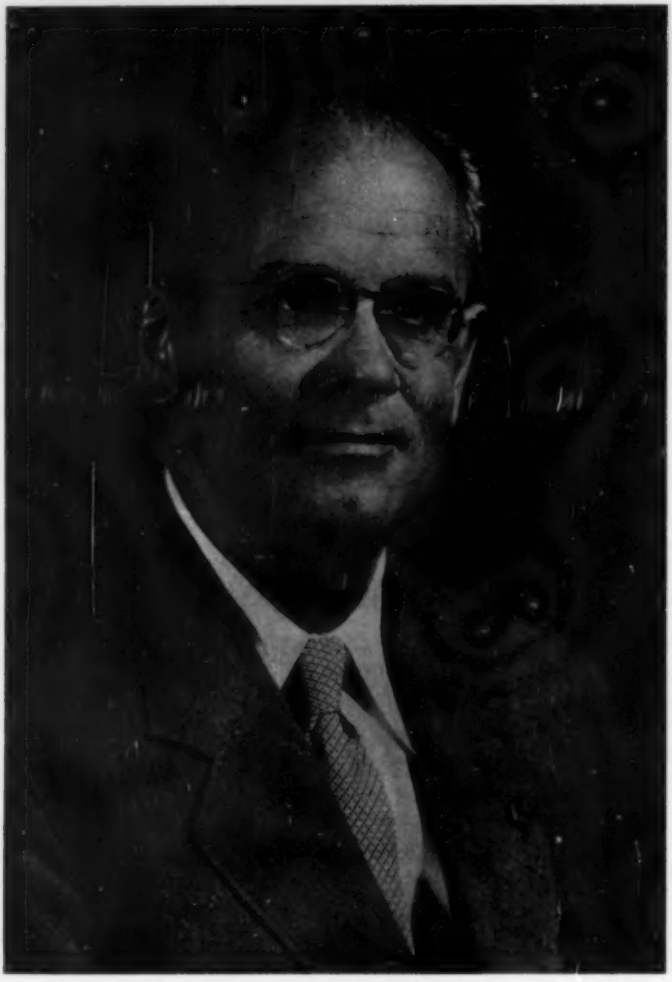
In addition to the professional activities suggested above, Prof. Ashdown's service and leadership have been sought and appreciated by many other related groups. With the rapid development and growth of the M.I.T. Graduate School, there came eventually the establishment in 1933 of the Graduate House, intended to provide means not merely for housing but also for the broadening and widening of graduate student horizons by affording opportunity for di-

rect mingling of representatives of all the many professional fields represented in the M.I.T. Graduate School. Prof. Ashdown has from its beginning served as the resident master of the Graduate House and during his twenty-one years of contact with those who have resided there, has exerted upon the lives of many thousands of graduate students an influence which every one of them will forever appreciate. An incidental result of these contacts has been to give Dr. Ashdown the widest friendship of any individual person of my own circle of acquaintance.

Many other M.I.T. activities have also claimed his active attention and interest. Since 1940, he has served as secretary of the M.I.T. Society of Arts, which as provided in the original M.I.T. Charter, presents annually a series of experimentally demonstrated lectures on technical developments in science and engineering, addressed to seniors and teachers of high and preparatory schools and to the general public. He has for many years been active in the professional research fraternity of Sigma Xi and for more than a decade has been secretary of the M.I.T. Chapter.

As a member of the American Chemical Society (since 1917) his indispensable aid in many capacities is particularly appreciated by the local Northeastern Section. This he has served in so many offices that I cannot remember them all. They include, however, those as chairman of the Northeastern Section (1941), secretary of the Section, councillor of the Section, custodian of the section (since 1928), and editor of the Northeastern Section's publication, *The Nucleus*, continuously since October, 1929. I take particular interest in this last item, not only because of the outstanding results produced, and not only because of the twenty-five year period of uninterrupted service, but because I personally have been waiting all this time to brag about the fact that in 1929, after Walter G. Bullard relinquished the office, I suggested to the Section that Prof. Ashdown was exactly the man whom they were seeking as editor of *The Nucleus*. I feel certain that Avery has never known this before.

I recall with delight a thousand mutual experiences he and I have shared. Until our several responsibilities began to diverge enough to interfere with the times at which we could be away together, Avery and I have spent many vacations and weekends together. We have climbed over many of the White Mountains, including a particularly memorable hoist up Tuckerman's Ravine and hence to the Mount Washington summit on what proved to be the hottest day of the year. We have jointly been welcomed to a little New Hampshire town by a parade and brass band only to find that in our peregrinations we had inadvertently joined a celebration of Old Home Week. We have boiled corn on the cob in a coffee pot over



**Dr. Avery A. Ashdown**

a camp fire; we have eaten together incomparable raspberry pie; we have been swimming together; we have together sought to acquire at first hand suitable quantities of raspberries, blackberries, and blueberries. In fact, my favorite mental picture of Avery sees him in a bathing suit and glasses, picking in a driving rain, a certain blueberry bush near our camp which at the last moment before leaving for home he remembered that we had been saving for less inclement weather.

With all the activities represented by these small samples from Avery's busy life the question suggests itself as to how he can do it—what is the secret of his interest and vigor? I think that it is because he is "young at heart."

# Presentation to Dr. Ashdown

PROF. AVERY A. ASHDOWN, associate professor of organic chemistry at Massachusetts Institute of Technology, received the Honor Scroll of the New England Chapter of THE AMERICAN INSTITUTE OF CHEMISTS, at a meeting, May 26, 1954, at the M.I.T. Faculty Club, Cambridge, Mass. Dr. A. W. Fisher, Jr., chairman of the Chapter, presided.

Dr. Donald B. Keyes, AIC president, spoke briefly on the objectives and activities of the A.I.C. He pointed out that while the national organization can do many things to benefit the members of the profession, there are several aspects of the program which can best be carried out at the local Chapter level. He congratulated the New England Chapter on their selection of Prof. Avery A. Ashdown as the recipient of their 1954 Honor Scroll.

Awards for scholarship were made to nine seniors in chemistry and chemical engineering in the Boston area. Hervey J. Skinner, chairman of the Student Awards Committee of the New England Chapter, made the presentation to: Lloyd D. Taylor, Boston College; Nicholas Yannoni, Boston University; Lewis T. Reynolds, Harvard University; Dale Wilson Rice, Massachusetts Institute of Technology; Dominick A. Sama, chemical engineering, Massachusetts Institute of Technology; Sumner Levine, Northeastern University; David A. Aikens, chemical engineering, Northeastern University; Alexander MacLachlan, Tufts College, and Miss Marilu Van Anden, Wellesley College.

Prof. E. H. Huntress discussed Dr. Ashdown's record of long service to chemistry and to chemists. He covered the many positions of responsibility and hard work that Prof. Ashdown has held in the American Chemical Society and the contributions that he has made to graduate students in all fields through his position as master of the Graduate House of M.I.T.

Raymond Stevens, national AIC councillor, presented the framed, hand-lettered certificate to Dr. Ashdown, who responded with reminiscences of his activities. (See preceding pages.)

The citation to Dr. Ashdown reads:

*Awarded this 26th day of May 1954, to Avery Allen Ashdown, in recognition of his untiring services to his fellow chemists, especially through his work in and for the Northeastern Section of the American Chemical Society and also for his guidance and inspiration to students in all fields at the Massachusetts Institute of Technology.*

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# Planning A Research Program

**Dr. M. L. Crossley, Hon. A.I.C.**

*Former AIC President, 734 Park Avenue, Plainfield, New Jersey*

(This talk was presented recently to the Association of Research Directors.)

What factors must be considered when making a plan for research? Why should the cost estimate be included? Who should make the plan? What pitfalls may cause the research program to fail, no matter how well planned? The answers are in this article.

A PLAN OF action is essential in any worth-while undertaking. It is the charted course which should lead to the desired goal. It must be built upon a foundation in which the basic structural elements are what, why, and how; what is wanted, why it is wanted, and how it is proposed to get it. A plan of action compels one to have a fixed goal. Sailing eastward, a ship may reach some port, but a definite course must be chosen and maintained if she is to reach a particular harbor.

Research endeavor is no exception. A plan is important if one wishes to work intelligently and efficiently. There is never a single choice of a problem to be investigated and there must be some basis for choosing one problem rather than another. To experiment without clear purpose and wise perspective is to invite the disaster of foundering in the slimes and tars of laboratory inefficiency; the graveyard of many efforts. Serendipity is uncommon even under the best conditions of general experimentation.

Objections to planned research arise from misunderstandings. A plan, however good and wise, does not in itself insure a successful solution of any problem. However, it should help one to gain the knowledge that will aid in solving the problem with the least possible waste of time and energy. Many scientific investigators object to a plan in the belief that it curtails individual freedom of thought and limits the scope of accomplishment. This would be a valid objection if the investigator was given a "ready-made" plan to follow slavishly without thought or interest. Wise and efficient direction would not tolerate such a perversion of the principles and spirit of research. Another objection to planned research is that often important discoveries are outside of the results expected and therefore could be overlooked if one's thought and powers of observation were too definitely focused on what it is desired to accomplish. The weakness of this argument lies in the fact that it presupposes the investigator's capacity to

observe is reduced by his having a plan of action. This is neither logical nor scientific. Orderly procedure should quicken the imagination, intensify curiosity and open the windows of the mind to be better able to perceive what is, without blurring the vista of results anticipated. The person who experiments without plan does so without thinking much about what he is doing or why he is doing it. By chance he may learn something worth knowing but there is no reason to think that he would have learned less in following a planned program of research. A plan imprisons the mind only for intellectual vagrancy.

In planning a research program one should first envisage the broad outline of the area of knowledge required to link up the facts which lead from the known into the realm of the unknown. All pertinent data should be assembled, coordinated, and evaluated to serve as the foundation on which to erect the new knowledge derived from the investigation. This will vary with the nature and purpose of the research and may require some prospecting and considerable inquiry to assess its scope. The broad outline is only the architectural sketch of the plan. No greater mistake is made in research than that of undertaking work on a broad plan before a detailed analysis is made of the several problems involved. This analysis should indicate the major difficulties to be encountered and the probable ways of overcoming them. All reasonable evidence should be weighed and applied in the consideration of the results of the analysis. The problems which have arisen in the dissection of the plan should be viewed separately to see how their solution will affect the successful execution of the plan.

One of the most important problems in planning a research program is the timing of investigations. There are many phases to be considered. A choice must be made. In making the decision as to what should be undertaken first, certain considerations should play a prominent role. One's first thought should be directed to an understanding of the nature of the problems anticipated. Are they real? What is their relative importance in relation to the broad program. With the validity of the problems established then the question arises as to the desirability of undertaking the research at the time. Several factors influence the decision; the proficiency of knowledge and expertness available at the time, the need for the solution to aid other investigations, the time that may be involved, the chances of success and last but not least the probable cost of the program of research..

Cost, you say! What a vile word to profane the purity of the ideals and traditions of research! One can't estimate the cost of research, and results of a research program can't be evaluated in terms of cost! What nonsense! Regardless of the place where the research is done, University or indus-

trial research laboratory, cost is and must be an important criterion in determining the desirability of the choice of action. The time of competent investigators, the money available; and human energy are limited while problems are unlimited. It should be important to do what is most worth-while. However, this is the road-block in our thinking. We think, as a rule, only of the dollar sign as the measure of what is most worth-while when the greatest achievements are not to be evaluated in dollars but in contributions to the sum of knowledge which helps to enrich human life. The cost estimate of a research problem can be extremely valuable, if used properly, in helping the investigator to get his bearings and determine his position from time. It is to him what a sextant is to the captain of a ship; a guide, helping to establish his position in the stormy sea of research. It should be used wisely and fearlessly without unnecessary alarm by knowing the financial dangers surrounding his course. The mariner who sees only the danger to his ship from the thundering billows is not likely to lift up his eyes and with Ruskin see the sky "almost human in its passions, almost spiritual in its tenderness, almost divine in its infinity."

There are two major difficulties in using cost-estimate in research work. Both stem from the same cause; lack of sympathetic understanding by the investigator. First the tendency is to try to cover the entire project in one blanket estimate, which is usually meaningless and worthless as a means of helping to keep the investigation on an efficient basis. The second difficulty is that of ignoring the basis of the estimate and permitting charges unrelated to the phase of the problem worked on during the time. A cost-estimate of research to be of value must apply only to a definite and limited program of work to be done. When this is done or when the results indicate that a change in the program is necessary, the estimate should be closed and another prepared for the next step decided upon. To some it seems that to estimate the cost of research is degrading and a waste of energy. I have never been able to understand how my ability as a scientist and reputation for efficient work could be defiled by my knowing as accurately as possible what I was doing.

The success of any plan depends upon the proficiency, expertness, experience and familiarity of the planners with the detailed circumstances and activities involved. This is particularly true in planning a research program. No president's cabinet or brain trust, however capable, can plan a program of research to be handed down to the laboratory for execution. A research program can be planned only by those experts directly responsible for carrying it out. The broad outlines of the program must be formulated by the research director

and his assistants, but the detailed plan can only be fashioned by the group charged with the responsibility for executing the plan. Every member of the group should participate in making and refining the plan. Only in this way will enthusiastic cooperation and teamwork be realized. It is imperative that there be competent leadership. The director of research must be more than a managerial agent conducting the show by remote control. Scientific research must be directed on the field of action. The director must be sensitive to every move and ready to push the advantage of success or cushion the shock of defeat. He must always have the confidence and respect of his organization. He can't be too close to the firing line.

In industrial research, problems will arise in the minds of many who are interested and responsible for maintaining the intrinsic worth of the business. The salesman whose bread and butter depends upon the volume of sales wishes to have that which his competitor is offering, only, it must be better and cheaper. Management wants stuff "in the barrel" to sell without extra costs for plant and equipment, and the customer wants products that will perform better and cost less; all worthy objects. However, none of the problems so arising can in themselves justify the initiation of a program of research. It is the responsibility of the director of research to weigh such problems with wisdom and sympathetic understanding and then determine what should be done about them. A problem might seem quite real to the salesman who has lost business to a competitor but on analysis prove to be unsolvable by research. The purchaser of a yellow dye to go into a brown printing ink may give the salesman a story of his having chosen a competitive product because of a slight difference in brightness when in fact this should have had no influence on the dirty brown ink his plant made. The determining factor was a lower price per unit of tinctorial power. It is evident that research to improve brightness and clarity of tone in this case may not have been justified. In the end a superior product may get back some of the lost business but at a substantial drop in price. This price adjustment could have been made at the outset and the money spent for the research saved. However, one should not reject such a problem on the assumption that it is not a research problem until analysis establishes the fact.

Management and sales cannot initiate or determine research programs. They can and should aid research in securing the kind of information needed in judging the importance and value of the problems that arise in the conduct of the business. They cannot plan research programs to protect the business the company has, nor can they determine alone the policy for future development. The future development in chemotherapeutic

agents may be dependent on the outcome of certain fundamental research in progress on mechanism of action or that of a clan of faster-to-light dyes or physical research on the nature of fading; facts which they can't know or assess as to their value in a research program for the company.

The research director must have his finger on the pulse of the productive organism and be sensitive to changes which may affect the health and life of the business before they occur. He is the only one who can see what the broad outlines of the research program should be. His capacity to comprehend the facts and evaluate the results furnished him place him in the pivotal position for aiding in the planning of the research program. He should be responsible for the plan.

Too often a plan of research fails to produce results, not because of defects in the plan but because of failure in its execution; careless observation and inaccurate records. The observation of what is happening in an experiment is often delegated to an unschooled laboratorian as a chore, while the trained investigator sits at his desk recording what he is told happened yesterday. The result is that the record is too often only that remembered of what is thought to have occurred. The validity of the results is no better than the method permits. Expensive research founders on the sandbar of inexperience.

Essential to the success of planned research is adequate and competent evaluation of the results of experimentation during the execution of the plan. To recognize when to stop in research is frequently more important than to know when to start. Keen observation of results should indicate what changes should be made in the plan. However, changes should not be made without careful evaluation and discussion by the responsible group, including the head who should see that the directors are kept informed. A planned program in which the investigators participate fully in the making should be carried out faithfully and with full and intimate cooperation of the directing force.

Both planned and unplanned research suffer from, on the one hand, judgments based on incomplete evidence, and on the other hand, from the unwillingness to make decisions when the evidence should be sufficient; lack of courage to face facts, particularly when they mean failure. As a friend of mine has said, there are many who are eager to get their thumbprints on the pages of success but there are few who are willing to accept responsibility for failures.

The difficulties in planning a research program and the defects in the execution of the plan are many but they are inconsequential in comparison with the loss of time, energy, and money resulting from unorganized experimentation indulged in under the guise of research.

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# Social Security — Retirement Benefits for those not Adequately Covered by Existing Retirement Plans

**Benjamin Sweedler, F.A.I.C.**

420 *Lexington Avenue, New York* 17, *N. Y.*

(A report by the special committee appointed by the AIC Council to consider this matter.)

## Social Security

THE SOCIAL SECURITY LAW as recently amended:

(1) Admits ten-million more individuals to coverage, including self-employed chemical engineers. Self-employed chemists already had Social Security coverage.

(2) Increases monthly benefits as much as $5.00 for single retired workers and as much as $31.25 for some families. Primary benefits to retired workers will range from $30.00 to $108.50 per month as compared with $25.00 to $85.00 under the Law prior to the recent amendment.

(3) Increase the tax rates and the wage base on which taxes may be levied. Prior to the present amendment, the rates were 2 per cent each for employer and employee and 3 per cent for self-employed persons; starting in 1960, these rates increased until they reached 3½ per cent each for employers and employees and 4⅞ per cent for the self-employed, in 1970. As amended, the rates effective in 1970 are 3½ per cent for employers and employees and 5¼ per cent for the self-employed, with a further increase in 1975 to 4 per cent for employers and employees and 6 per cent for the self-employed. Starting January 1, 1955, the taxes will be levied on the first $4,200.00 of earnings, instead of on the present wage base of $3,600.00.

## Retirement Benefit for Those not Adequately Covered by Existing Retirement Plans

The Bills (Jenkins and Keogh Bills H.R. 10 and H.R. 11) to aid the self-employed and the pension-less employed to save for their retirement by granting a tax deferment to contributors to a savings fund have not progressed, chiefly due to the failure of the Treasury Department to make a report on these bills and to advance a constructive program which the Treasury Department would support.

Under these bills an individual not adequately covered by an existing retirement plan may exclude from his taxable income each year an amount, not in excess of ten per cent of his earned income, which is paid over to the savings fund. The maximum annual deduction cannot exceed $7,500.00 and the aggregate during the life of the taxpayer may not ex-

ceed $150,000.00. Persons over fifty-five years of age are allowed to deduct an increasing percentage each year, above the ten per cent limit, in order that they may build up worthwhile retirement funds during the remaining working years allotted to them.

Retirement benefits for the individual after reaching age sixty-five may be either a lump sum payment carrying a capital gain tax; annual, quarterly or monthly installments for a period of years; or the purchase of a life annuity contract upon retirement. Payments received under the installment or annuity method would be taxed as ordinary income, when received.

These bills would enable self-employed chemists to build up their own programs of retirement benefits and supplement the benefits under Social Security to provide adequate income during old age. The creation of such adequate income during old age under the staggering tax rates now in existence is, for most self-employed chemists, an impossibility.

Under corporate retirement plans contributions made by the employers to provide retirement income for the employees are tax-exempt. Self-employed chemists do not get the same tax benefits because the income used by them to pay for a retirement plan is taxable. Under the Jenkins and Keogh bills this inequality would be removed.

The immediately past session of Congress did not take action on the Jenkins Keogh bills. It behooves all of us to encourage actively the widest understanding of the importance of the Jenkins Keogh bills, or similar bills which will undoubtedly be introduced in the next session of Congress, and to take whatever action we can to ensure their passage. Probably the most helpful action that can now be taken is to communicate with your Congressmen.

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**Established:** The Carbide and Carbon Chemicals Award to be administered by the Paint, Plastics, and Printing Ink Division of the American Chemical Society. The award will be made annually for the outstanding scientific contribution reported in a technical paper read before a regular meeting of the division. Information on deadlines for submitting papers and instructions for preparing papers may be obtained from the division secretary, Dr. A. L. Alexander, Naval Research Laboratory, Washington 25, D. C.

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**Presented:** A survey of the research program of the Colgate-Palmolive Company, Jersey City, N. J., to the press in New York recently, by the research staff of the company, in connection with the announcement that the company has established a new radio-isotopes laboratory in New Brunswick, N. J. Dr. Manno F. Nelson heads the new laboratory, where isotopes are used as tracers in research on soaps, detergents, and toilet articles, in order to develop improved formulas and more efficient manufacturing processes. Prof. James B. Allison, F.A.I.C., head of the Bureau of Biological Research of Rutgers University, is cooperating with the project.

Dr. Thomas H. Vaughn, F.A.I.C., vice president in charge of research and development, outlined the research activities of Colgate and its cooperative program of research at major universities. A movie film, prepared by the scientific staff, gave "The Story of Gardol," Colgate's name for the anti-enzyme ingredient, sodium N- lauroyl sarcosinate, used in its dentifrice. Demonstrations with radio-isotopes showed that Gardol in dentifrice brushed on the teeth of test animals remains there as long as forty-eight hours afterward.

The unusually large participation of the research and development staff of a company in presenting such a program was explained by S. F. Coneybear, F.A.I.C., associate research director. "Colgate feels," he said, "that to be a success, the scientific man must learn to take an interest in every phase of the business with which he is associated."

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**Moved:** Hendrey Chemical Company, manufacturers' sales agents, fine and medicinal chemicals, from Evanston, Ill., to 1535 N. Dayton St., Chicago 22, Ill. The new location provides increased space and laboratory facilities. Dr. W. B. Hendrey, F.A.I.C., a former chairman of the Chicago AIC Chapter, and Frank Bessing head the staff. Dr. Hendrey was recently elected a director of Northwestern Research Corp., of Chicago, a concern working in the field of hair treatments, including the application of polymerizable silicones to the straightening and curling of hair and similar fibers, on which it holds a number of patents.

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**Engineering Salaries:** Received by graduates are leveling off after spiraling for more than ten years, reports Illinois Institute of Technology. The average starting salary of engineering graduates in June, 1953, was $362 per month; that for January, 1954, was $373 per month, and that for June, 1954, was $363 per month. Earl C. Kubicek, director of placement, stated, "Both business leaders and educators have been wondering how long engineering salaries would continue to climb. Salaries this June indicate that the spiral may have reached a plateau."

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**New Position:** For Dr. Fritz Rosenthal, F.A.I.C., now plastics research chemist with the Armour Research Foundation of Illinois Institute of Technology, Chicago, Ill. He was formerly with the Nashua Gummed Paper Co., Nashua, N. H.

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**Established:** By Pennsylvania Salt Manufacturing Company, of Philadelphia, a Canadian Division, Pennsalt Chemicals of Canada, with sales office and warehouse facilities in Hamilton, Ontario.

**Elected:** Clifford F. Rassweiler, F.A.I.C., vice chairman of the Board of Directors of Johns-Manville Corporation, as Honorary Chairman of the American Section, Society of Chemical Industry, for the year 1954-1955. Announcement of the election was made by the retiring chairman, Dr. Lauren B. Hitchcock, F.A.I.C., president of the Southern California Air Pollution Foundation, Los Angeles, Calif.

Other officers elected are: Honorary Vice-chairman, Dr. Robert M. Burns, Bell Telephone Laboratories, Murray Hill, N. J.; Honorary Treasurer, Dr. Cecil L. Brown, F.A.I.C., Standard Oil Development Co., Linden, N. J., Honorary Controller, Dr. Robert Heggie, F.A.I.C., American Chicle Co., Long Island City, N. Y.; Honorary Secretary, Anthony L. Carrad, Imperial Chemical Industries (New York) Ltd., New York, N. Y., and Honorary Assistant Secretary, John Parkinson, Johns-Manville Corp., New York, N. Y.

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**Twentieth Anniversary:** Of The *Chemical Digest,* publication sent without charge to those interested in new research developments, by Foster D. Snell, Inc.

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**Merged:** General Dyestuff Corporation with General Aniline & Film Corporation, New York 17, N. Y. General Dyestuff Company will now be a sales division of General Aniline.

**Appointed:** An International Vitamin Commission under the auspices of the Food Division of the International Union of Pure and Applied Chemistry, with Prof. E. Brunius, of the National Public Health Institute, Stockholm, Sweden, as chairman. Dr. Bernard L. Oser, F.A.I.C., of the Food Research Laboratories, Inc., is a member of the Commission, which will provide standardization in the vitamin assay of foods in various countries and thus facilitate international trade.

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**New Position:** For Dr. Charles C. Price, F.A.I.C., who has been named Blanchard Professor of Chemistry and director of the Harrison Laboratory of Chemistry at the University of Pennsylvania. He was formerly head of the Department of Chemistry at the University of Notre Dame.

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**Grant:** Awarded by the Socony Vacuum Oil Co., Inc., to Dr. Theodore Bieber, assistant professor of chemistry at Adelphi College, Garden City, N. Y., for research in amide synthesis.

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**Announced:** By John B. Calkin, F.A.I.C., assistant to the president of Foster D. Snell, Inc., 29 West 15th St., New York, N. Y., the appointment of Ralph W. Kumler as pulp and paper consultant.

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**Meeting Date:** The 32nd Annual Meeting of the Federation of Paint and Varnish Production Clubs will be held at the Palmer House, Chicago, Ill., on Nov. 18-20, 1954.

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**Elected:** Dr. Lloyd A. Hall, F.A.I.C., technical director, The Griffith Laboratories, Inc., Chicago, Ill., as councilor-at-large and a member of the executive council of The Institute of Food Technologists.

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**New Position:** For Frank J. Marocco, M.A.I.C., who is now with the Tensolite Insulated Wire Co., Tarrytown, N.Y.

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**Appointed:** By the Speer Carbon Company, St. Mary's, Penn., Dr. R. L. Womer as vice president for research and development. He was formerly with Olin Industries, Inc.

**Selected:** Stanford Research Institute, Stanford, Calif., by the U.S. Atomic Energy Commission, as one of three national Industrial Information Depositories of unclassified information concerning developments in the field of atomic energy. The others are the Atomic Industrial Forum of New York and the John Crerar Library of Chicago.

**Elected:** E. K. Stevens as president of the International Exposition Company, 480 Lexington Ave., New York 17, N. Y. He succeeds the late Charles F. Roth, F.A.I.C.

**Industrial Exposition:** Planned by the American Society of Tool Engineers' to be held in the Shrine Auditorium and Exposition Hall, Los Angeles, Calif., in March 1955. The Society's headquarters are at 10700 Puritan Ave., Detroit 38, Michigan.

**New Technique:** For treating snake bites was described by Dr. Cash Blair Pollard, F.A.I.C., when he was honored by the Florida Section of the American Chemical Society recently in St. Petersburg, with its Section Award. Dr. Pollard originated the treatment with Dr. E. H. Andrews, Gainesville, Florida, surgeon. Dr. Pollard is also known for his research on quinine and infant deafness, piperazines, and organic nitrogen compounds. He is professor of chemistry at the University of Florida and consulting toxicologist to Alachua General Hospital of Gainesville.

Dr. Pollard came to the University of Florida in 1930 to establish a program of graduate study in the Department of Chemistry. The first department there to award the graduate degree was the Department of Chemistry in 1934. Since then, twenty-six Ph.D. degrees and eighteen M.S. degrees have been awarded under Dr. Pollard's direction. He is deeply interested in good teaching at all levels.

**Speaker:** Dr. Joseph W. E. Harrisson, director of LaWall & Harrisson Research Laboratories, Philadelphia 3, Pa., who recently delivered an illustrated talk before the Binghamton Academy of Medicine, the Binghamton Section of the American Chemical Society, and the Boone County Pharmaceutical Association, on "Chemical Additives in Food."

# Communications

## Likes Editorial on Science Teachers

To the President:

I was very glad to read in the July issue of THE CHEMIST that you had been chosen as the president of the AIC for the current year. I enjoyed reading your editorial because it stressed a problem which I see very keenly and which I am glad that you are placing before the chemists of the country. When you get suggestions, I hope that you will pass them on to us in order that we may all work together toward the improvement of chemistry teaching in secondary schools . . .

—PHILIP G. JOHNSON
*New York State College of Agriculture, Cornell University*

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## Additional Information

To the Editor:

One point was inadvertently omitted from the release announcing the Ipatieff Book Fund (page 314, August 1954 CHEMIST. Dr. Ipatieff willed the Chicago Section of the ACS the sum of $500 to be used in any manner they saw fit. When it was proposed to set up some sort of memorial to Dr. Ipatieff, an anonymous donor agreed to add the sum of $4500 to the bequest provided that the entire amount would be set up as a trust fund by the Section, with the income used to purchase books for the Crerar Library.

—JAMES J. DOHENY, F.A.I.C.
*Manager, Chicago Section, American Chemical Society*

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## We Sell It

To the Editor:

Referring to the letter on page 337 of the August issue of THE CHEMIST (the juice of the Jewel weed as a palliative for poison ivy), please report that we have this product for sale, named "Naturel."

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**Honored:** Dr. Gustav Egloff, Hon. AIC, who was elected to honorary membership in The Chemical Society of Japan recently. He has been re-elected to Council member-at-large of Cornell University, for a two-year term. In October he receives the Carl Engler Medal Award of the German Institute of Petroleum and Coal, at the annual meeting held in Essen, Germany, and has been asked to be one of the members of the Honor Committee for the meeting.

**Elected:** Dr. Lloyd Van Doren, AIC secretary, to the Board of Trustees of Gettysburg College, Gettysburg, Pa., for a six-year term. Recently he was elected to membership in the New York Academy of Sciences.

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**Elected:** Dr. Donald B. Keyes, AIC president, as an Honorary Member of the Chemical, Metallurgical & Mining Society of South Africa, Johannesburg, for the year ending June 30, 1955.

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### Name and Address Wanted

Dr. Lloyd Van Doren, AIC secretary, reports that he has received a postal card intended to "notify publisher of change of address." The card was postmarked Princeton, N.J., Aug. 18, 1954, but no change of address or name of sender was on the reverse side of the card!

# AIC Activities

**C. P. Neidig, F.A.I.C.**

## New York Chapter

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*Vice-chairman,* Jack Dollinger
*Secretary-Treasurer,* Richard L. Moore
Foster D. Snell, Inc., 29 W. 15th St., New York 11, N. Y.
*National Council Representative,*
Karl M. Herstein

### Speed Reading

Speed reading will be the topic at the joint AIC-ACS meeting, December 2, 1954, at the Carbide Cafeteria, 30 E. 42nd St., New York, N. Y. Allen Sack, director of the Speed Reading Institute, will speak at the meeting which is jointly sponsored by the New York AIC Chapter and the New York Section of the American Chemical Society.

The meeting will be open to all interested persons. Dinner will be available from 5.45 p.m. to 7:30 p.m., when the meeting will begin. Mr. Sack's talk includes a demonstration, in which the entire audience will participate. Reprints of an article on speed reading by Mr. Sack will be distributed. John Kotrady, AIC Chapter chairman, will preside. Refreshments will be served after the meeting.

Mr. Sack, who is co-founder of the Speed Reading Institute, has taught, lectured, and written extensively on the subject of reading improvement, and is a consultant on readability to industrial companies. The Speed Reading Institute has been called upon by numerous industrial organizations to train groups of executives in how to read faster with greater comprehension.

For Reservations: Dr. John A. King, Warner-Chilcott Research Laboratories, 113 W. 18th St., New York 11, N. Y. (WAtkins 4-7700).

# Will You Come

**Oct. 7, 1954.** Pennsylvania Chapter. Engineers Club, 1317 Spruce St., Philadelphia, Pa. Dinner 6:30 p.m. ($2.75). Meeting: 8:00 p.m. Speaker. Dr. Charles C. Price, "Science, Freedom, and Power."

**Oct. 8, 1954.** Chicago Chapter. Furniture Mart. Dinner. Award of Chapter's Honor Scroll to Prof. Harold C. Urey. Speakers: Prof. Malcolm Dole, "Harold C. Urey, Politics and the Man"; Prof. Willard F. Libby, "Harold C. Urey, the Scientist." Acceptance Address, Prof. Urey, "Scientists, Secrets and Security."

**Oct. 12, 1954.** Washington Chapter. Luncheon 12:15 p.m. at O'Donnell's Sea Grill, 1221 E St., N.W., Washington, D.C. Speaker: Dr. Benjamin Van Evera, professor of chemistry, George Washington University, "Problems in Chemical Education."

**Oct. 14, 1954.** New York Chapter. The New York Times Dining Room, 11th Floor, 229 W. 43rd St., New York, N.Y. Dinner 6:00 p.m. Group Singing, Dr. Henry B. Hass. Speaker, Detective James Osterburg, New York City Police Department, Crime Laboratory, "Science vs. Crime." Question and Answer Period. "Auld Lang Syne," Richard L. Moore. Presiding chairman, John Kotrady.

**Oct. 27, 1954.** National AIC Council and Board of Directors. The Chemists' Club, 52 East 41st Street, New York 17, N. Y. Dinner 6:00 p.m.

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**Dec. 2, 1954.** Pennsylvania Chapter. Award of the Chapter's Honor Scroll. For information: Robert Kunin, Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.

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**Dec. 2, 1954.** New York Chapter jointly with New York Section of the American Chemical Society. Carbide Cafeteria, 30 E. 42nd St., New York 17, N. Y. Dinner 5:45. Speaker, Allen Sack, Associate Director, Speed Reading Institude, "Speed Reading." Everyone present will participate in a speed reading demonstration. Question and answer period. Presiding chairman, John Kotrady. Reservations: Dr. John A. King, Warner-Chilcott Research Labs., 113 W. 18th St., New York 11, N. Y.

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**Dec. 15, 1954.** National AIC Council and Board of Directors. The Chemists' Club, 52 East 41st St., New York 17, N. Y. Dinner 6:00 p.m.

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**Jan. 20, 1955.** New York Chapter. East Ballroom, Hotel Commodore, 42nd St. & Lexington Ave., New York 17, N. Y. 6:00-7:00 p.m. Reception, Grand Foyer of East Ballroom, courtesy American Cyanamid Company. 7:00-8:00 p.m. Dinner. Informal. Honorary Chairman, Dr. Wallace P. Cohoe. Toastmaster, John Kotrady. Introduction, Dr. Robert C. Swain. Presentation of Honorary AIC Membership to Dr. Milton C. Whitaker, retired vice-president, American Cyanamid Co., Dr. Donald B. Keyes. Honor Recipient's Address, Dr. Milton C. Whitaker. Reservations: Shepherd Stigman, Foster D. Snell, Inc., 29 W. 15th St., New York 11, N. Y.

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**Feb. 4, 1955.** Pennsylvania Chapter. Speaker, Dr. John Bockris of the University of Pennsylvania, "The Chemical Profession in England." For details: Robert Kunin, Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.

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**Feb. 9, 1955.** National AIC Council and Board of Directors. The Chemists' Club, 52 East 41st St., New York 17, N. Y. Dinner 6:00 p.m.

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**Feb. 24, 1955.** New York Chapter. The New York Times Dining Room, 229 W. 43rd St., New York, N. Y. Dinner 6:00 p.m. Subject: "Advancing Yourself in Chemistry in the Pharmaceutical and Medical Fields." Question and answer period. Presiding Chairman, John Kotrady. Reservations ($2.75), Shepherd Stigman, Foster D. Snell, Inc., 29 W. 15th St., New York 11, N. Y.

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**April 7, 1955.** Pennsylvania Chapter. Informal social evening. Refreshments and entertainment. For information: Robert Kunin, Rohm & Haas Co., Washington Square, Philadelphia 5, Pa.

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**April 13, 1955.** National AIC Council and Board of Directors. The Chemists' Club, 52 East 41st St., New York 17, N. Y. Dinner 6:00 p.m.

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**April 15, 1955.** Ohio Chapter. Annual Meeting. Mayflower Hotel, Akron, Ohio.

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**Apr. 28, 1955.** New York Chapter. The New York Times Dining Room, 229 W. 43rd St., New York, N. Y. Dinner 6:00-7:30 p.m. Presentation of Awards to Student Medalists. Speaker Dr. A. W. Fisher, Jr., Arthur D. Little, Inc., "Algæ as a Potential Future Source of Food." Question and answer period. Presiding chairman, John Kotrady. Reservations ($2.75), Shepherd Stigman, Foster D. Snell, Inc., 29 W. 15th St., New York 11, N. Y.

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**May 5, 1955.** Pennsylvania Chapter. Student Award Meeting. Mrs. (Dr.) E. J. Rosenbaum, formerly of Drexel Institute, will speak on "Women in The Chemical Profession."

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**May 12, 1955.** National AIC Council and Board of Directors. The LaSalle Hotel, Chicago, Ill. Dinner 6:00 p.m.

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**May 12, 13, 14, 1955.** AIC Annual Meeting. LaSalle Hotel, Chicago 2, Ill.

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**May 14, 1955.** National AIC Council Breakfast. LaSalle Hotel, Chicago.

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**May, 1956.** AIC Annual Meeting. Tentatively scheduled for Washington, D.C.

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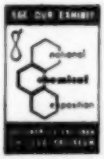


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# For Your Library

## Successful Commercial Chemical Development

*Edited by H. M. Corley. John Wiley & Sons, Inc. XXVI.* 374 *pp.* 6" x 9". $7.75.

To call a book monumental labels it as static; this one is not that. It is a remarkable compilation of the aggressive thinking and the experiences of more than a hundred—the publisher says 106—leaders and pioneers in the commercial development of chemical products. Because the authors approach their subjects from the rich and diverse backgrounds of their own different personal histories, their product contains a wealth of information and a variety of points of view seldom to be found between the covers of a single volume. Indeed the very diversity of its contents makes the book an encyclopedic mine of information and at the same time an interesting volume to read.

In an activity as young as this one, the definition of terms requires clarification it confusion is to be avoided. That gives the third chapter of the book special interest because there all the various terms used in commercial chemical development are painstakingly defined. That supplies a sturdy foundation for the 20 other chapters.

The subjects covered range from the first U.S. Patent granted by George Washington to Samuel Hopkins in 1790, through the development of the chemical industry, the various steps and methods of developing chemical products commercially, and a number of case histories of successful developments and failures, to a final chapter on the kind of people likely to succeed in this activity. One could wish for more case histories. From time to time in the text the effects of compromise between authors can be felt in spite of the skillful way that the editor has endeavored to reconcile differences. But there is no compromise in the beginning of the last paragraph of the book which starts: "Good commercial chemical development men are not born. They are made." Something revolutionary here! It is a valuable book; don't miss it.

—D. H. KILLEFFER, F.A.I.C.

## Organic Chemistry

*Second edition. By R. C. Fuson and H. R. Snyder. John Wiley & Sons, Inc.*, 1954. *VIII*—544 *pp.* $6.50

Those already familiar with this excellent general organic chemistry textbook will need only to be told that the second edition, as the authors state, "adheres closely to the original plan of presentation." The added 38 pages to be found in the new edition represent material which has been inserted where considered necessary throughout the text and most of the chapter headings are unchanged. One section which has been greatly enlarged is the one dealing with polymerization reactions. The carefully chosen suggested readings at the end of the chapters have also been revised to include material published since the first edition appeared in 1942.

As in the previous edition, aliphatic and aromatic compounds are both introduced in the early chapters so that the first section of the book can be used in connection with a brief course in organic chemistry. Much of the information is presented in terms of functional group reactions and the authors have endeavored to indicate the reaction conditions which are so important a part in the practical application of theoretical organic considerations.

—J. MORAN

## The Optical Properties of Organic Compounds

*Second edition. By Alexander N. Winchell. Academic Press.* 488 *pp.* 6¼" *x* 9¼". $12.00.

Completely revised and enlarged this second edition of the Optical Properties of Organic Compounds is a complete compendium of the indices of refraction and crystallagraphic data of organic compounds arranged in the Beilstein order. It is a valuable reference book.

## Chemistry of the Defect Solid State

*By A. L. G. Rees. Menthuen. John Wiley & Sons,* 136 *pp.* 6⅝" *x* 4⅛". $2.00.

This compact book contains information on the chemical effects of crystal defects; catalysis, tarnishing, and reactivity; with theory and discussion of the nature of defects and electronic behavior.

## Composition and Assaying of Minerals

*By J. S. Remington and W. Francis. Philosophical Library.* 127 *pp.* 5¾" *x* 8¾". $5.50.

A compilation of wet methods of analysis of minerals and fire assay of gold and silver. Spectroscopic and nuclear methods will be given in future publications.

## Theory of Elementary Chemical Analysis

*By Thomas H. Whitehead. Ginn & Company.* 233 *pp.* 6¾" *x* 9⅜". $2.75.

Elementary qualitative analysis with a separation of theory from laboratory manual with standard treatment and accent on laboratory safety.

—DR. JOHN A. STEFFENS, F.A.I.C.

## Chemical Books Abroad

### Rudolph Seiden, F.A.I.C.

Walter de Gruyter & Co., Berlin W 35: *Bluecher: Auskunftsbuch fuer die chemische Industrie*, by A. Ernst and L. Neumann; 18th ed., 1386 pp.; DM 90.- One of the great standard works — I have heard American research chemists and consultants call it their "bible." There are over 4,700 terms discussed, from Abasin — $(C_2H_5)_2$ C Br. NH.CO.NH.CO.-$CH_3$, a sedative — to zymase; emphasis is put on modern equipment and recently developed raw materials used in the chemical industry of Germany which, no doubt, again is on the way to leadership. Valuable are the thousands of literature references which this inexhaustible "information book" contains. • *Lehrbuch der physiologischen Chemie*, by S. Edelbacher and F. Leuthardt; 11th ed., 813 pp. (61 ill.); DM. 42.- One of the best-known textbooks on physiological chemistry. It describes very thoroughly — and in this order — carbohydrates, fat, sterols, proteins, nucleinic acids and all their related compounds; chemical-physical theories applied to biochemistry; metabolism and ferments; composition and metabolism of the various organs and tissues; hormones; and nutrition (including vitamins).

Broggers Boktr. Forlag, Oslo (Stechert-Hafner Inc., New York): *Practical Mycology*, by Sigurd Funder; 1953, 146 pp.; $7.- A manual for the microscopic identi-

fication of fungi for biochemists, bacteriologists, physicists, and for workers in agriculture and in the fermentation and food industries. In addition to hundreds of unsurpassable drawings of fungi, this book contains a well-written introduction to mycology (35 pp.), a table of classification, a glossary, references, and a most complete index.

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Urban & Schwarzenberg, Munich 22: *Ullmanns Encyklopaedie der technischen Chemie, Vol. IV: Arzneimittel — Calciumsulfit,* by W. Foerst; 3rd ed., 842 pp. (268 ill.); DM. 108- As stated in our reviews in THE CHEMIST of February 1952, and March 1954, "Ullmann" is an essential part of the reference library of every chemist and chemical engineer; but it is regretable that it will take years to complete its 14 volumes. The third volume now off the press again lists an impressive number of authorities who contribute well-illustrated articles with many valuable tables about hundreds of subjects. For example, one can find in this volume up-to-date information on pharmaceuticals (Arzneimittel), atoms, azo dyes, Ba, building materials (Baustoffe), benzol, betaines, beer, Pb (Blei), blood, B, Br, butyl alcohols, Cd and Ca and their compounds.

# Something New

"Roto-Cell. Liquid-cooled double cell carrier for use with Bausch & Lomb Spectronic 20 Colorimeter." Bulletin 121. Arthur H. Thomas Co., P.O. Box 799, Philadelphia 5, Pa.

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"Publications List of American Standards." American Standards Association, Inc., 70 East 45th St., New York 17, N. Y.

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"Products Catalogue." American Potash & Chemical Corp., 3030 West 6th St., Los Angeles 54, Calif.

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"Alnico Non-electric Magnetic Separators." Bulletin 275-A. Magnetic Engineering & Mfg. Co., Clifton, N. J.

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"Trial Kit for NeoFloor, non-skid floor material." $15.00. For information, or kits, Pennsylvania Salt Manufacturing Co., Philadelphia 7, Pa.

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"Capacitive Level Indicator." Information. Thermo Instruments Co., 1310 County Road, Belmont, Calif.

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"Wall Chart: Outline of the History of Chemistry." By Herbert S. Klickstein. Mallinckrodt Chemical Works, 72 Gold St., New York 8, N. Y.

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"Eriez Model P Permanent Grate Magnet." Information. Eriez Manufacturing Co., Erie, Pa.

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"Table for Predicting the Performance of Fixed Bed Ion Exchange and Similar Mass Transfer Processes." Handbook. Research Department, Dow Chemical Co., Pittsburgh, Calif..

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"N-Butyl Aniline and N-2-Ethylhexyl Aniline." Information. Carbide & Carbon Chemicals Co., 30 E. 42nd St., New York 17, N. Y.

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"New Closed Cup Flash Tester." Bulletin No. 4070. Labline, Inc., 217-221 N. Desplaines St., Chicago 6, Ill.

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"Manganese Sulphide for glass colorant." Technical data. Foote Mineral Co., Philadelphia 44, Pa.

"Ultra-Sensitive Scintillation Counter." Information. The Radiac Co., Inc., 489 Fifth Ave., New York 17, N. Y.

"Rubber 'O' Ring Seals." Brochure. Minnesota Rubber & Gasket Co., Dept KP, 3630 Woodale Ave., Minneapolis 17, Minn.

"Plastics Extenders; Fillers for Polyester Resins; Metallic Soap Celling Agents; Lead Compd for Stabilizing Halogen Organics; Plasticizer for Vinyl Resins; D-iso-octyl Phthalate." Bulletins. Witco Chemical Co., 260 Madison Ave., New York 16, N. Y.

"Summary of 1952-53 Development in Plastics." Published in *Mechanical Engineering*, Aug. 1954. For information: The American Society of Mechanical Engineers, 29 W. 39th St., New York 18, N. Y.

"Cycle Controllers." Bulletin JG-1 West Instrument Corp., 525 N. Noble St., Chicago 22, Ill.

"Coatings Thickness Tester for Coatings on Steel." Information. Gardner Lab., Inc., 4723 Elm St., Bethesda 14, Maryland.

"Spherical Glass Beads, 42 to 840 microns." Information. Arthur S. La Pine & Co., 6001 S. Knox Ave., Chicago 29, Ill.

"Laboratory Tool Kit", 9" x 4", containing tools to service laboratory instruments. $7.00. Standard Scientific Supply Corp., New York 12, N. Y.

"Thanite, Insect Toxicant." Booklet. Hercules Powder Co., Wilmington, Del.

"Disaster," booklet No. 5000-4, about safety and rescue equipment. Mine Safety Appliances Co., 201 No. Braddock Ave., Pittsburgh 8, Pa.

"Butadiene," Safety data sheet, SD-55. $0.25. Manufacturing Chemists' Association, 1625 Eye St., N. W., Washington 6, D.C.

"Color Control for Chemists." 8-p. illus. Bulletin. FS-246. Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

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Bloomfield, N. J.

"Allies in Defense. Some Facts about Synthetic Organic Chemicals." Synthetic Organic Chemical Manufacturers Association, 41 E. 42nd St., New York 17, N. Y.

"Polyethylene Bottle Rests." Information. American Agile Corp., P. O. Box 168, Bedford, Ohio.

"Behenic Acid (Docosanoic Acid)." Technical bulletin. Aceto Chemical Co., Inc., 40-40 Lawrence St., Flushing 54, N. Y.

"New Electric Pressure Transmitter — Teledyne." Information. L. S. Barker, Taber Instrument Corp., Section C-53, 111 No. Goundry St., N. Tonawanda, N. Y.

"DuPont Hypalon Flex-i-liner." Information. Vanton Pump & Equipment Corp., Empire State Bldg., New York 1, N. Y.

"Laboratory Reagents Catalog." 196-pp Will Corporation, Rochester 3, N. Y.

"Ultra-fine Silica, high purity." Information. Dow Corning Corp., Midland, Michigan.

"Multi-Purpose Shaker." Information. Palo Laboratory Supplies, Inc., 81 Reade St., New York 7, N. Y.

"Calibrator Attachment for Sub-Sieve Sizer." Information. Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

"Ultra-Viscoson Electronic Viscometer." Information. Cincinnati Div., Bendix Aviation Corp., 203 W. Third St., Cincinnati 2, Ohio.

# Condensates

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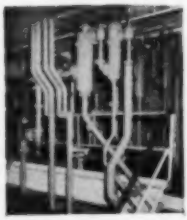

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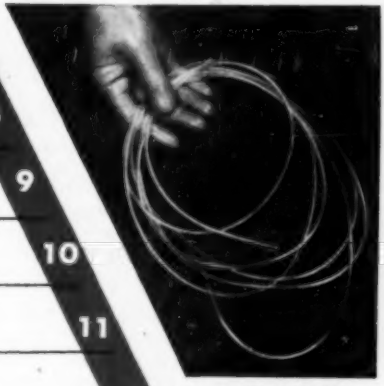

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